Reintegrating Mine Countermeasures into the Greater Naval Force

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The current naval force is unable to conduct mine countermeasures in support of amphibious operations in a contested environment but can mitigate this problem using resources already available. After examining the mine threat and presenting problems within the current force, this paper proposes solutions that the United States can implement today. The mine is an effective asymmetric weapon utilized by potential enemies of the United States. The mine threat continues to grow while the United States' mine countermeasures capabilities languish. Today's mine countermeasures force is not properly integrated into fleet exercises with amphibious forces, naval combatant forces, or major joint assets. Today's mine countermeasures forces lack a command ship or heavy lift capability for surface ships and are overly dependent on coalition assets. The changes proposed in this paper are to fully integrate the current force's exercises and to expand command and control capabilities. These changes will mitigate the risk to the current force and set the groundwork for the effective introduction of the future force.

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DECEIVING OURSELVES

Mines represent an oversized threat to the joint force. They are an asymmetric weapon which particularly threatens amphibious operations and straits transits. The mine threat continues to increase, not decrease, as both the quantity and quality of mines continues to grow.[1] Mines destroy sea control, which the maritime force usually presumes for operations. Recent geopolitical changes, including the return of near-peer power competition, has threatened the United States' presumption of sea control. The effectiveness of the United States' current mine countermeasures' force has been called into question while at the same time the arrival of the future mine countermeasures' force appears perpetually delayed.

Given the threat and lack of attention, the question begs—how can the naval force (Navy and Marine Corps) better integrate mine countermeasure capabilities in support of expeditionary operations in a contested environment? The current naval force is unable to conduct mine countermeasures in support of amphibious operations in a contested environment but can mitigate this problem using resources already available. After examining the mine threat and presenting problems within the current force, this paper will propose solutions that the United States can implement today. Changes to fully integrate the current force's exercises and to expand command and control capabilities can mitigate the risk to the current force and set the groundwork for the effective introduction of the future force.

THE MINE PROBLEM

History of Mines

Since its invention, the mine has been an effective and economical weapon of choice for strong and weak maritime nations alike. Early versions of mines can be traced back to the

[1] Truver, "Taking Mines Seriously," 2.

Chinese as early as the 1st Century B.C.[2] But the development of the mine did not truly begin to take shape until the invention of gunpowder in the 14th century.[3] The mine in its modern form, was first called a torpedo. It did not emerge until the American War for Independence with the invention of the "Bushnell Keg."[4] Work by the American engineer Robert Fulton advanced the steamboat, submarine, and torpedo, all becoming operationally effective during the American Civil War through experimentations with various ironsides, submersibles, and torpedoes—sparred, anchored, and floating.[5] A mine attack on the battleship *Maine* in 1898, thought at the time, was the pretense for the start of the Spanish-American War.[6] Subsequent wars, the Russo-Turkish and Russo-Japanese Wars, in particular, brought greater technical and tactical advancements to the use of the torpedo and mine.[7] The Englishman Whitehead's invention of a self-propelled torpedo permanently separated development of the torpedo from the mine, though the more simple mine would go on to cause more damage than its famed descendent, the torpedo.[8] Mines sank sixteen ships in the Russo-Japanese War while torpedoes sank none.[9]

The lethality of the modern mine started a trend pitting the effectiveness of defensive mines against the ineffectiveness of mine countermeasures. This dichotomy was particularly evident in the failures of the combined British and French naval forces to overcome the German and Turkish defenses at Gallipoli.[10] Winston Churchill declared that success in the attack "was not achieved because the sweepers were inadequate . . . and this fact led directly

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[2] Low, *Mine and Countermine*, 15.
[3] Low, *Mine and Countermine*, 16.
[4] Low, *Mine and Countermine*, 38
[5] Low, *Mine and Countermine*, 39.
[6] Low, *Mine and Countermine*, 72.
[7] Low, *Mine and Countermine*, 59, 77.
[8] Low, *Mine and Countermine*, 60.
[9] Truver, *Weapons That Wait*, 294;
Low, *Mine and Countermine*, 61.
[10] Low, *Mine and Countermine*, 180-185.

to the losses in the attack of March 18, and indirectly to the abandonment of the whole naval enterprise."[11] Mines caused a week delay in the landing of a 250-ship and 50,000-man strong NATO force at Wonsan, Korea, in 1950. Local non-military fishing vessels had laid a 400-square-mile minefield of 3,000 mines, mostly Russo-Japanese War era contact mines interspersed with modern magnetic influence mines. The repeated demonstration of a weaker naval force hampering a larger naval force through the use of mines identifies the mine as an asymmetric weapon of choice for the defense of the littorals.

Since WWII, mines have emerged as the biggest threat to the United States Navy, sinking or causing serious damage to more warships than all other threats combined. Four ships have been seriously attacked by other weapons—one each to missiles, torpedoes, aircraft, or terrorist small boat attack—while fifteen ships have been seriously attacked by mines.[12] Mine warfare in the modern age reached its nadir in the Persian Gulf during the sequential Iran-Iraq War and the Persian Gulf War, where 1,300 mines were laid in the Northern Arabian Gulf.[13] Mines damaged the United States' guided missile frigate *Samuel B. Roberts*, amphibious carrier *Tripoli*, and guided-missile cruiser, *Princeton*.[14] Since the mine has become such a powerful and asymmetric weapon, development of technology and techniques to counter the mine naturally followed quickly in its footsteps.

History of Mine Countermeasures

Mine-countermeasures forces often lag behind the mine threat in both capability and persistence. The first attempts at modern mine sweeping were made by the Russians at the

[11] Low, *Mine and Countermine*, 185.
[12] Truver, "Taking Mines Seriously," 3.
[13] Truver, "Taking Mines Seriously," 1.
[14] Truver, "Taking Mines Seriously," 2.

turn of the 20th century.[15] The crude method of sweeping developed a hundred years ago still forms the basis of mechanical sweeping today. Mine clearing is always a time and resource heavy enterprise, even when deliberatively sweeping known minefields in the most permissive environments. After the end of World War I, ten times as many assets were required to sweep the North Sea Barrage as were required to lay the barrage—4,000 men on 82 ships working around the clock for over five months.[16] Only 40% of the mines laid could be accounted for; one ship was sunk and 23 were damaged during check sweeping operations; mines continued to wash up on local beaches for years.[17]

During World War II, the modern triad of surface, airborne, and underwater mine countermeasures emerged. "EOD units and underwater demolition teams were… used to reconnoiter beach approaches for mines on assault landings," "minesweeping vessels continued to lead advancing U.S. naval forces in all theaters," and aircraft were used "to vector ships through minefields in shallow waters."[18] Operation End Sweep, a very deliberate, well-planned, and well-resourced mine clearance operation during Vietnam, proved the success of airborne mine countermeasures.[19] It also re-enforced the lesson that "Mine sweeping of any sort is difficult, tedious, lengthy, and totally devoid of glamor."[20] The United States again demonstrated the success of the full mine countermeasures triad when it cleared mines from the Suez Canal in the aftermath of the 1973 Arab-Israeli war with Operations Nimbus Star, Nimbus Moon Land, Nimbus Moon Water, and Nimrod Spar. The Vietnam era produced the foundations of the mine countermeasures force used today.

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[15] Low, *Mine and Countermine*, 170.
[16] Melia, *Damn the Torpedoes,* 37.
[17] Melia, *Damn the Torpedoes,* 38.
[18] Melia, *Damn the Torpedoes,* 60.
[19] Melia, *Damn the Torpedoes,* 110.
[20] Melia, *Damn the Torpedoes,* 110.

Variants of the H-53 helicopter were first used in 1973 to pull mine countermeasures' sleds, and the Avenger-class Mine Countermeasures (MCM) ship was first commissioned in 1981.[21] The surface and airborne legs of the modern mine countermeasures triad are these two platforms, extended beyond their expected service lives and materially fragile.

Current Mine Threats

As the post-World War II hegemony of the United States is diminished, the international order in which it operated is being called into question as regional powers sow instability.[22] Current mine threats to the United States and its allies include threats from China, Russia, Iran, North Korea, and non-government actors.[23] China poses a threat to Taiwan and to disputed territorial claims in the South China Sea and adjacent waterways.[24] China's mine laying capabilities include at least forty dedicated minelaying surface ships, in addition to secondary mine laying capabilities on other surface ships, maritime aircraft, helicopters, and diesel-electric and nuclear submarines.[25] China's mine inventory has developed from being primarily imported to being domestically produced. It has expanded from vintage contact mines to a full array of modern influence, rocket-propelled, self-navigating, and intelligent mines.[26] Submarine-launched mobile mines or even Chinese-owned merchant vessels converted to lay mines covertly could threaten domestic United States ports.[27] The Chinese view mine warfare as a primary warfare area, which is regularly exercised by the fleet and is central to naval planning.[28] China's relative superiority in mine warfare against the United States provides them a unique advantage at chokepoints along the

[21] Melia, *Damn the Torpedoes*. 99, 116.
[22] DoD, *2018 NDS*, 2.
[23] Truver, "An Act of War."
[24] Truver, "Taking Mines Seriously," 33.
[25] Truver, "Taking Mines Seriously," 9.
[26] Truver. "Taking Mines Seriously," 10.
[27] Truver, "Taking Mines Seriously," 17.
[28] Truver, "Taking Mines Seriously," 14.

first and second island chains and in a Taiwan crisis.[29] When military planners look to counter threat rings of anti-ship missiles from China's anti-access/area-denial strategy, it is obvious that the additional threat posed by China's mine capabilities is not counter-able except in a contested, multi-domain threat environment.

Mines laid in any strait or other vital littoral waterway would cause significant problems for naval maneuver and merchant shipping, hampering military capabilities and wreaking havoc on the world economy. The United States ability to support regional allies or access natural resources are threatened if Russia mined the entrance to the Black Sea or Iran mined the Strait of Hormuz. In response to Iranian threats to mine the Strait of Hormuz in 2012, the Commander of the United States Fifth Fleet, Admiral Fox, said that such action would be regarded as an act of war.[30] The overall scale of the modern mine threat is summed up by national security and mine warfare expert, Scott C. Truver:

> Not counting U.S. stockpiles, there are perhaps a million naval mines… in the inventories of more than 60 navies. Estimates of Russian naval mine stockpiles run to 250,000 weapons. China's navy has upwards of 100,000 naval mines. North Korea reportedly has some 50,000 mines and Iran has about 5,000. More than 30 countries produce naval mines and 20 countries export them.[31]

The sheer size of the worldwide mine threat, particularly among nations possibly hostile to United States' interests, should stand as a warning that this asymmetric weapon can provide a disproportionate advantage in times of war against the maritime power of United States.

[29] Truver, "Taking Mines Seriously," 16.
[30] Capaccio, "U.S. Would Block Iran."
[31] Truver, "An Act of War."

THE FORCE PROBLEM

The current naval force is unable to conduct mine countermeasures in support of amphibious operations in a contested environment. This capability gap is a result of both a failure to adopt new technology to the current force and a failure to adapt the current mine countermeasures force into the greater naval force of today.[32] The failure of a peacetime mine countermeasures force to meet wartime demands is not new, however. After each major war involving mine warfare, from World War I and II through the Korean War and the Gulf War, the United States quickly disbanded its mine countermeasures forces. Senior officials did not see the requirement for mine countermeasures forces in peacetime, and career officers did not view positions in the mine countermeasures' force as a fast track for promotion.[33] Investigations following the loss of United States warships in the Persian Gulf revealed lack of development and sustainment of the United States' mine countermeasures forces and the United States' reliance on coalition partners for mine countermeasures capabilities.[34] The crux of current problems in the mine countermeasures' force includes the failure to replace the current force, integration shortcomings, and shortfalls in command and control.

Failure to Replace the Current Force

Mine countermeasures future force acquisitions difficulties have placed the current naval mine countermeasures force in a brittle condition.[35] The defense industry promised modern technology which would replace antiquated sweeping systems and "take the man out of the minefield."[36] However, failures of the Littoral Combat Ship mine countermeasures

[32] Eckstein, "Littoral Combat Ship Program;"
Eckstein, "Navy Will Not Buy More RMMVs;"
LaGrone, "Navy Developing New Mine Countermeasures."
[33] Melia, *Damn the Torpedoes,* 137.
[34] Melia, *Damn the Torpedoes,* 129.
[35] Truver, "Taking Mines Seriously," 18.
[36] Bauke, "Navy to 'take the man out of the minefield.'"

mission module and ancillary systems have resulted in current surface and airborne mine countermeasures forces that are atrophied in maintenance and capabilities. What was supposed to replace the current force is unproven and has a poorly defined timeline.[37] There is no plan to replace the current air or surface mine countermeasures systems with a one-for-one swap with an updated variant of the existing systems.[38] The most hopeful predictions of mine countermeasure future technology is one dominated by "third offset" and "ghost fleet" swarms of unmanned underwater vehicles coordinated by advanced technology such as artificial intelligence.[39] Whether the replacement of the future mine countermeasures' force is the proposed Littoral Combat Ship or a leapfrog to even more futuristic capabilities, the current mine countermeasures' force is still left in a brittle condition. Whatever the mine countermeasure's future force will look like is unclear, and identifying it is beyond the scope of this paper. This paper will simply refer to that unknown capability or system broadly as what it is, the future mine countermeasures' force.

The Marine Air Ground Task Group teamed with the Amphibious Task Force is a task-organized combined-arms force ready to conduct amphibious operations anywhere in the world.[40] Surface mine countermeasures ships, unfortunately, are unable to fully support this mission because they do not have the ability to deploy quickly to many parts of the world. Outside of the United States West Coast, Arabic Gulf, and the waters immediately surrounding Japan, the joint force has no effective way to employ surface mine countermeasures. JP 3-15 notes that "While these vessels can operate for extended periods of

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[37] Eckstein, "LCS Mine Countermeasure Package Delayed;"
Eckstein, "LCS Mission Package Testing."
[38] Eckstein, "Navy Crafting Master Plan."
[39] Osborn, "Navy Undersea Drones;"
South, "DoD must update future battlefield."
[40]USMC, *MCDP-3*, 69.

time, their transit speed is slow, and therefore they are unable to deploy rapidly in support of contingency operations. They are often deployed by heavylift [sic] shipping, and availability of such assets must be considered." The stated requirement to heavy lift a surface mine countermeasures vessel, however, understates the complexity of the problem.

The difficulty of heavy lift begins because there is no heavy lift ship available organically to the joint force.[41] The heavy lift shipping would have to be commercially contracted. Awarding this contract to operate in a possibly hostile environment on a short timeline presents its challenges. Additionally, moving a mine countermeasures ship is not as simple as loading an amphibious vehicle and then starting her up again at arrival. The crew must essentially place all systems in layup for the transit and then place everything back online upon arrival. The last heavy lift of mine countermeasures ships—of those currently forward deployed to Sasebo, Japan—resulted in extensive maintenance periods in order to make the ships functional again.[42] Except in the most planned-well-in-advance operations, the complexity of the heavy lift requirement effectively eliminates the possibility of using surface mine countermeasures in support of an amphibious operation outside of the geographic vicinity of forward-deployed units.

Integration Shortcomings

Mine countermeasures' exercises almost exclusively assume a permissive environment, and combatants do not practice defending mine countermeasures operations. For the mine countermeasures commander to conduct mine countermeasures operations in a contested environment, their forces would have to be defended by a carrier strike group, an up-gunned expeditionary strike group, or at a minimum, a surface action group. Executing

[41] D'Costa, "Massive Ships."
[42] Observation is based on the author's personal experience.

this task would not be easy. Surface combatants operating in contested and mined littorals for extended periods of time would be significantly burdened by the task, the difficulty of which would place the mine countermeasures force at significant risk. Tactics, techniques, and procedures have not been thoroughly developed to do this specific task, and those tactics, techniques, and procedures which do apply are not practiced in the context of the defense of a mine countermeasures force.

Amphibious warfare exercises and mine countermeasures exercises are separated by time and space. Mine countermeasures exercises and amphibious warfare exercises essentially operate in a vacuum, insulated from each other. Even when a mine countermeasures exercise is incorporated into a major amphibious warfare exercise, the mine countermeasures portion is separated from the amphibious portion. The mine countermeasures exercise assumes a non-contested environment, is not held by the timeline constraints of the amphibious exercise, and its units are not required to coordinate with the amphibious task force. Most significantly, the mine countermeasures units do not have to defend themselves or coordinate their defense against any enemy forces. Similarly, the amphibious warfare exercise assumes away the mine threat. Assumptions include that the mine threat has been neutralized or at least that lanes have been successfully cleared during shaping operations. The amphibious forces are not constrained by the lengthy timeline of mine countermeasures operations or by the inevitable shortcomings of the mine countermeasures force—tracks not swept to sufficient confidence due to material breakdown, time constraints, environmental factors, or enemy influence.

The task force commander assumes much risk by not properly integrating mine countermeasures and amphibious warfare exercises. First, by not integrating the exercises,

the units and their staffs are unable to develop proficiency working alongside each other. The irony is that both the mine countermeasures and amphibious units are designed to work in concert with each other. Second, without integrating exercises, friction points between the two forces—the gaps in seams in operating parameters and capabilities, command and control mechanisms, and planning shortfalls—will never come to the surface. Resolving these friction points will make the entire force more effective and will make way for changes and additions to current doctrine, tactics, techniques, and procedures. Third, not integrating the forces will continue to enforce the separation between the forces, leading to a lack of buy-in on the effective integration of the future mine countermeasures' force. Problems related to the lack of integrating forces in training and exercises are further complicated by problems in the command and control capabilities of the mine countermeasures force.

Command and Control

A major contributing factor adding to the difficulty of integrating the mine countermeasures and amphibious forces is the current lack of a mine countermeasures command ship. The United States Navy previously maintained mine countermeasures command ships. However, the last explicitly designated as such was the mine countermeasures support ship *Inchon*, decommissioned in in 2002.[43] Not having a mine countermeasures command ship reduces the mine countermeasures' staffs' mobility and proficiency in operating afloat. Mine countermeasures' command staffs primarily operate ashore. With the exception of the Fifth Fleet's use of the expeditionary landing base *Lewis B. Puller*, if a staff is required to operate afloat, they will have to deploy on an amphibious ship with which they have not practiced.[44] A mine countermeasures command staff without a

[43] NHHC, "Inchon LPH-12."
[44] Eckstein, "Lewis B. Puller."

ready mine countermeasures command ship presents a risk to mission, particularly if forced to deploy on a short timeline.

When planning an amphibious operation, it is necessary to be clear in the assignment of tasks and areas of responsibility. Doctrine designates that a line of demarcation for mine countermeasures planning and execution be drawn between the Amphibious Task Force and the Landing Force.[45] This division of responsibilities occurs at the point when the landing force is historically at its most vulnerable—at the water's edge. With mine countermeasures being such an imprecise and vulnerable task, perhaps this is not the most opportune location to transfer the responsibly of planning and executing such a critical task.

Mine countermeasures missions are an increasingly coalition venture, and the majority of the exercises conducted by the forward-deployed mine countermeasures forces are coalition exercises. The United States' forward-deployed mine countermeasures forces regularly conducts exercises with those of Australia, United Kingdom, Japan, South Korea, and the Gulf Nations.[46] However, while the United States is globally postured to respond to international crises that threaten its interests around the world, many of its coalition partners have a more regional or even local set of interests. The coalition's interests are often primarily the result of a shared common regional enemy. Unfortunately, any reliance on coalition mine countermeasures will be of little use in support of operations not against common enemies of the United States' coalition partners. Additionally, coalition countries may have little incentive to commit mine countermeasures' forces away from their homeland when regional threats still endanger their domestic waters.[47] Coalition warfare is tenuous in

[45] CJCS, *JP 3-02*, III-14.
[46] Truver, "IMCMEX 2012."
[47] Truver, "Taking mines Seriously," 23.

any situation, but reliance on coalition capabilities must be approached with extra caution when one's capabilities are so brittle and the threat is so asymmetric.

WHAT CAN BE DONE TODAY

This paper asserts that the current naval force is unable to conduct mine countermeasures in support of amphibious operations in a contested environment. However, the fleet must do more than wait for the defense industry to finish the design, testing, and production of the future mine countermeasures force. Changes to current exercise integration and command and control capabilities can mitigate the risk to the current force and set the groundwork for the effective introduction of the future force.

Full Integration

The naval force must fully integrate exercises between mine countermeasure forces and amphibious forces. Mine countermeasures and amphibious warfare exercises should fully integrate in both time and space. This integration must be in both pre-deployment training and certification exercises and on-deployment fleet and coalition exercises. The mine countermeasures units participating in pre-deployment exercises and certifications will be different than the mine countermeasures units participating in on-deployment fleet and coalitions exercises. This discrepancy is due to the constraint of the location of the current mine countermeasures forces and the simple fact that, with minor exceptions, mine countermeasures forces are not organic to the amphibious force. Even though the mine countermeasure forces will not deploy with the Amphibious Readiness Group or Expeditionary Strike Group, the training value will not be diminished. Mine countermeasures units will become proficient in operating with various task forces which will, in turn, become proficient in operating with mine countermeasures ships.

Mine Countermeasures force exercises must then integrate into the ship defense systems and related command and control structure of the combatant units providing the defense of the mine countermeasures' forces. Just as in the example of the amphibious task force above, the mine countermeasures forces would be not be deploying with the strike force or surface action group with which they had conducted exercises. However, this discrepancy would not detract from the purpose of the exercise. Exercising defense of mine countermeasures forces would do three things. First, it would prove the capability. Second, it would expose gaps and seams in doctrine, tactics, techniques, and procedures. Exposing these discrepancies would enable their refinement. Third, it would train the mine countermeasures units in integrating with the greater naval force and train the greater naval force in the unique constraints of defending the vulnerable mine countermeasures force.

The mine countermeasures' exercises must also be integrated with the joint force, primarily the critical mine countermeasures' capability provided by Air Force with the Joint Direct Attack Munition Assault Breaching System (JABS). The naval forces rely on this Air Force capability to conduct mine countermeasures in the Surf Zone.[48] This space of water from 10 feet to the high water mark, while of negligible importance to the safety of Navy ships and maritime shipping, is of critical importance to be cleared for an amphibious operation.[49] Without this joint enabler, the risk to the force and mission of conducting an amphibious assault would likely be deemed too high to execute if intelligence indicates a mined surf zone. Even though live integration of JABS within a combined mine countermeasures and amphibious exercise is unlikely, a synthetic integration of joint forces

[48]USN, "Countermine System."
[49] USN, *21st Century USN MIW*, 9.

into the combined mine countermeasures and amphibious exercise would similarly establish relationships and refine doctrine, tactics, techniques, and procedures for the joint force.

Expanding Command and Control Capabilities

Mine countermeasures commanders must be allocated a designated mine countermeasures' command ship capable of supporting their staff by providing a communications suite and a platform for the airborne mine countermeasures—an expeditionary mobile base, amphibious transport dock, or landing helicopter assault/dock. Assignment of this non-permanent ship would be rotated based on which ship, in their maintenance and training cycle, can surge for a deployment. The model can be similar to a rotating continuation of operations ship, the ship ready to embark a fleet's commander and staff at a moment's notice. The staff would rotating on and off various ship during their internal training cycle and for exercises. While not a perfect solution, a rotating mine countermeasures command ship concept will keep the force better integrated and ready.

The heavy lift contract for mine countermeasures ships should be a standing requirement with established and practiced standard operating procedures. Not doing so requires accepting that surface mine countermeasures capabilities are not available in certain parts of the world—a gap in joint force capabilities. Until the future mine countermeasures' force is in place, the "expeditionary" heavy lift capability should be refined and practiced in order to make it an operationally feasible option.

Finally, a combined Navy and Marine Corps mine countermeasures organization should be created to conduct mine countermeasures operations. This organization would share the burden of planning and executing the mine countermeasures' mission in all stages of an amphibious operation. Its structure could be similar to how the landing force support

party is a temporary organization composed of Navy and Marine Corps elements.[50] This unity of effort would reduce the gaps and seams inevitably created by arbitrarily drawing a line of debarkation between the services' mine countermeasures' efforts.

The proposals to increase both the integration and the command and control capabilities of the mine countermeasures force can be acted upon today. The result will the increased ability to counter a mine threat if called upon—with the force available now. These proposals would not only increase the effectiveness of the naval force and their staffs, but would also enable the identification of additional gaps and seams in the doctrine, tactics, techniques, and procedures and command and control organizations. These lessons learned would better allow the commander to assess the risks posed by mines. Finally, these changes provide visibility of the mine countermeasures community to the rest of the naval and joint force, which would increase advocacy for future mine countermeasures force and ease its integration into the fleet.

WHY SOME CLAIM IT MAY NOT MATTER

While no sources are available which assert that United States' mine countermeasures capabilities are ideal in their current state, many may argue against the need to develop the capability to conduct mine countermeasures in support of amphibious operations in a contested environment. The contention is that mine countermeasures do not need to be a priority for joint exercises because the joint force will not engage in mine countermeasures unless a permissive environment exists. It is not hard to find this contention backed up, even in military doctrine. JP 3-18 states that "Local maritime superiority is required to project power ashore in support of the joint forcible entry operation and to protect sea lines of

[50] CJCS, *JP 3-02*, X-11.

communications," and JP 3-15 states that "local air and maritime superiority is normally required for successful MCM [mine countermeasures] operations."[51] There would be much at risk to place vulnerable mine countermeasures assets in a contested environment.

There is validity in this argument. However, wishing away an enemy capability or the current or future force's requirement to counter that capability is a fantasy. History is replete with examples of military leaders declaring the end of amphibious operations or contested amphibious operations because the advance of the latest technology gave too much advantage to the defense.[52] These declarations represent false thinking. To declare that the contemporary naval force will not conduct a forcible-entry amphibious operation in a mine-contested environment is to basically cede the requirement to have a forcible-entry amphibious capability—or even for the existence of the United States Marine Corps. Certainly abandoning such important requirements are not in line with the intentions with strategic guidance.[53] The joint force must maintain the capability to conduct mine countermeasures in support of amphibious operations in a contested environment.

KEEPING A CRITICAL CAPABILITY

Countering the mine threat is critical to maintaining sea control or countering an anti-access/area denial threat. Mines are an inescapable threat because they are a prolific asymmetric weapon, they apply across the range of military operations, and they are a joint and coalition problem. Mines are an inexpensive and deadly threat and have become a prolific weapon of many of the United States' potential adversaries, including China, Russia,

[51] CJCS, *JP-18*, I-5;
CJCS, *JP-15*, IV-6.
[52] USMC, *MCDP-3*, 61.
[53] DoD, *2018 NDS*, 7.

North Korea, and Japan.[54] Even small threat nations or non-state actors could bring disproportional damage to the United States' interests by using mines or underwater improvised explosive devices in critical waterways. Mines can be a threat to United States' interests across the whole range of military operations, from high-end war with a near-peer competitor to conducting routine operations in what were thought to be permissive environments. The mine threat is even greater than that of known minefields, for the threat of the use of mines or the unknown location of a minefield is enough to "greatly hinder operations, for an extended time."[55] Mines are a threat to the force and the mission of the joint force and coalition partnerships. Full coordination with coalition partners and within the joint force will be required to defeat the mine threat.

While new platforms and futuristic technology will define the mine countermeasures forces of tomorrow, the force today must be ready to respond to the mine threat. The simple recommendations provided here can mitigate the limitations of today's mine countermeasures forces. These changes can be achieved with little investment, a rarity in the ever-present resource-constrained environment. This investment in integration and command and control capabilities will place the mine threat in the minds of leaders and integrate mine countermeasures operations into the naval and joint force. The result of this integration will be a force ready for the threats of today while awaiting the force of tomorrow.

[54] Truver, "An Act of War."
[55] Truver, "Taking Mines Seriously," 33.

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